

**Alternative 5  
Option C**

Bunker Hill

Acid Mine Drainage

Disposal of Raw Sludge in Smelter Closure Area Disposal Beds

Order of Magnitude Cost Opinion (Quantity reduced by 20%)

DATE: 11/29/2000

PROJECT NO.: 152215.FS.02

ESTIMATE BY: D. Bunte

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DESCRIPTION	QTY	QTY Reduced by 20%	UNIT	TOTAL UNIT COST	TOTAL COST
<b>CAPITAL COST FOR NEW CELLS IN FUTURE YEARS (DOES NOT INCLUDE PUMPING AND PIPING COST)</b>					
<b>Sludge Disposal Bed (per each)</b>					
Excavation	25,000	20,000	C. Y.	3.30	\$66,000
Subgrade Preparation	5	4	Acres	3,300.00	\$13,200
Subgrade Stabilization	10,500	8,400	C. Y.	4.40	\$36,960
Liner Protection Sand	8250	6,600	C. Y.	19.80	\$130,880
Drain Rock	1,950	1,560	C. Y.	19.80	\$30,888
Ditch Lining Geotextile	21,200	16,960	S. Y.	1.82	\$30,782
G C L	18,100	14,480	S. Y.	4.46	\$64,508
H D P E Geomembrane	18,100	14,480	S. Y.	5.94	\$86,011
H D P E Pipe, 10"	550	440	L. F.	25.30	\$11,132
Erosion Control Matting	11800	9,440	S.Y.	1.65	\$15,576
Perf Pipe, 4"	2000	1,600	L. F.	2.20	\$3,520
Perf Pipe, 6"	580	464	L. F.	3.30	\$1,531
HDPE Pipe, 6"	130	104	L. F.	2.75	\$286
Strip Drains	700	560	L. F.	1.93	\$1,078
Valves, 6" Knife Gate	2		Each	770.00	\$0
Valves, 10" Knife Gate	6		Each	1,100.00	\$0
Air/Vacuum Release Valve	1		Each	2,200.00	\$0
Valve Vault	6		Each	2,145.00	\$0
Water Tight Manhole	1		Each	3,850.00	\$0
Vertical Filtrate Drains	6		Each	4,400.00	\$0
Cleanouts	2		Each	825.00	\$0
Perimeter Road Embankment (not reduced)	28275	28,275	C. Y.	11.00	\$311,025
Chain Link Fence and Gates (not reduced)	1000	1,000	L.F.	13.20	\$13,200
Groundwater Monitoring Wells	2		Each	6,600.00	\$13,200
Crushed Rock Surfacing (not reduced)	1500	1,500	C. Y.	16.50	\$24,750

SUBTOTAL		\$1,090,113
MISC ALLOWANCE	10%	\$109,011
SUBTOTAL		\$1,199,125
CONTINGENCY	30%	\$359,737
SUBTOTAL		\$1,558,862
MOBILIZATION	15%	\$233,829
CONSTRUCTION TOTAL		\$1,792,691
SALES TAX ON MATERIALS	5.0%	\$27,572
ENGINEERING AND SUPPORT	20%	\$358,538
CONSTRUCTION MANAGEMENT	8%	\$143,415
<b>CAPITAL COST SUBSEQUENT BEDS TOTAL (ROUNDED)</b>		<b>\$2,320,000</b>
<b>ANNUAL O&amp;M COST FOR OPERATING BED</b>		<b>\$62,000</b>
<b>NPV OF ANNUAL O&amp;M COSTS (30 YEARS @ 7% INTEREST)</b>		<b>\$765,000</b>
<b>NPV OF INITIAL AND SUBSEQUENT BEDS &amp; CLOSURES CAPITAL COSTS @ 7% INTEREST</b>		<b>\$10,722,000</b>
<b>TOTAL 30-YEAR PRESENT WORTH COST @ 7% INTEREST</b>		<b>\$11,487,000</b>

**NOTES:**

Misc Allowance markup is to include items known to exist but cannot be quantified at this time.

Contingency is for scope changes that are presently unforeseen.

Mobilization includes bonds, insurance, temporary facilities, health & safety, demobilization, etc.

**NOTE:** The above cost opinion is in November 2000 dollars and does not include escalation.

The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final schedule and other variable factors. As a result, the final project costs will vary from those presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.